



The New Nordic Diet effectively reduces the environmental impact of food consumption (Scientific version)

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The *New Nordic Diet* effectively reduces the environmental impact of food consumption

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Introduction

Globally, agricultural production consumes large amounts of resources and releases large amounts of greenhouse gases, air pollutants, nutrients and pesticides. It alters soil structure and carbon storage in the soil, contributes to eutrophication, diminishes biodiversity and causes unintended toxic effects on flora and fauna – including humans.

While the production of food and beverages is a serious burden to the environment, we obviously have to eat and drink. But what we choose to eat and drink greatly affects the environmental impact on ecosystems and human well-being, as well as resource expenditure.

The choice of diet is personal, though often associated with ethnicity, social status, habit, age and gender, and influenced by policy and economics.

Meat, fish and dairy production typically causes greater environmental impacts than the production of fruit and vegetables. Reducing the content of meat and dairy products, and increasing fruit and vegetables in the typical Western diet would therefore decrease the environmental impact of eating and drinking.

The **New Nordic Diet (NND)** was designed in the multidisciplinary OPUS project by gastronomic, nutritional and environmental specialists to be a palatable, healthy and sustainable diet containing 35% less meat than the

Average Danish Diet (ADD), more wholegrain products, fruit and vegetables, locally grown food in season, and more than 75% organic produce.

Methods

We compared the environmental impact of the NND with the ADD measured by 16 impact categories, and monetised all impacts to evaluate the overall socio-economic effect of an ADD → NND diet shift.

Using the Simapro software and the Stepwise method, life cycle assessment was applied to separately investigate the three features by which this diet shift impacts the environment:

- (1) Diet composition
- (2) Transport of commodities
- (3) Organic *versus* conventional production.

Results

Taking only diet composition and transport into account, these aspects of the NND reduced the environmental impact relative to the ADD measured by all 16 impact categories. The socio-economic savings related to this diet-shift was €266/person/year or 32% of the overall environmental cost of the ADD (**figure 1**).

When the actual 8% content of organics in the ADD and the 84%

organics in the investigated recipe-based NND was also taken into account, only 10 of the 16 environmental impact categories were reduced, and the socio-economic savings related to the diet-shift were down to €68/person/year or 8% of the overall environmental cost of the ADD (**figure 2**).

The average Danish consumer pays €2,460/person/year for the ADD, and do not (yet) pay the €890 (**figure 2**) for the associated environmental impacts' cost.

In an attempt to environmentally optimize the NND, a vegetarian version of the NND was adopted by substituting all of the NND's meat and fish with dairy products and eggs. This doubled the climate benefits of the diet, saving 2/3 of the ADD CO₂eq-emissions caused by eating and drinking (**figure 3**).

Furthermore, the “vegetarian abstaining NND” saves 4/5 of the ADD's CO₂eq emissions caused by eating and drinking by substituting wine, beer, coffee, tea and sweets with healthy fruit and herb tea in the vegetarian NND (**figure 3**).

Conclusion

Reducing the content of meat and excluding most long-distance imports proved to be of substantial environmental and socio-economic advantage to the NND, while including high amounts of organics was a disadvantage.

We are thus *communicating the obvious* by calling for a 30-40 % reduction of meat in Western meals. **UNEP calls for a 50 % reduction of meat in Western meals.**

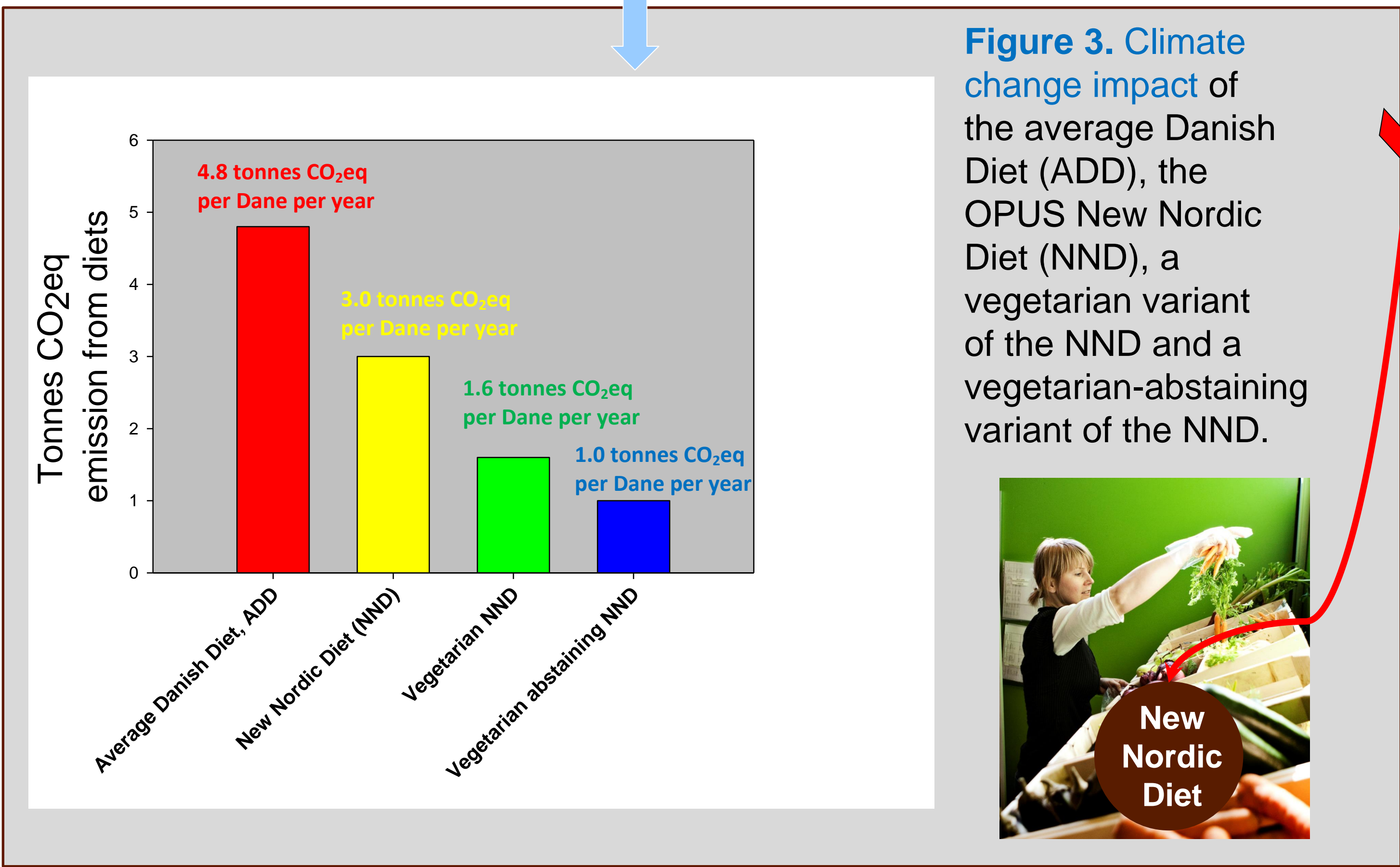


Figure 3. Climate change impact of the average Danish Diet (ADD), the OPUS New Nordic Diet (NND), a vegetarian variant of the NND and a vegetarian-abstaining variant of the NND.

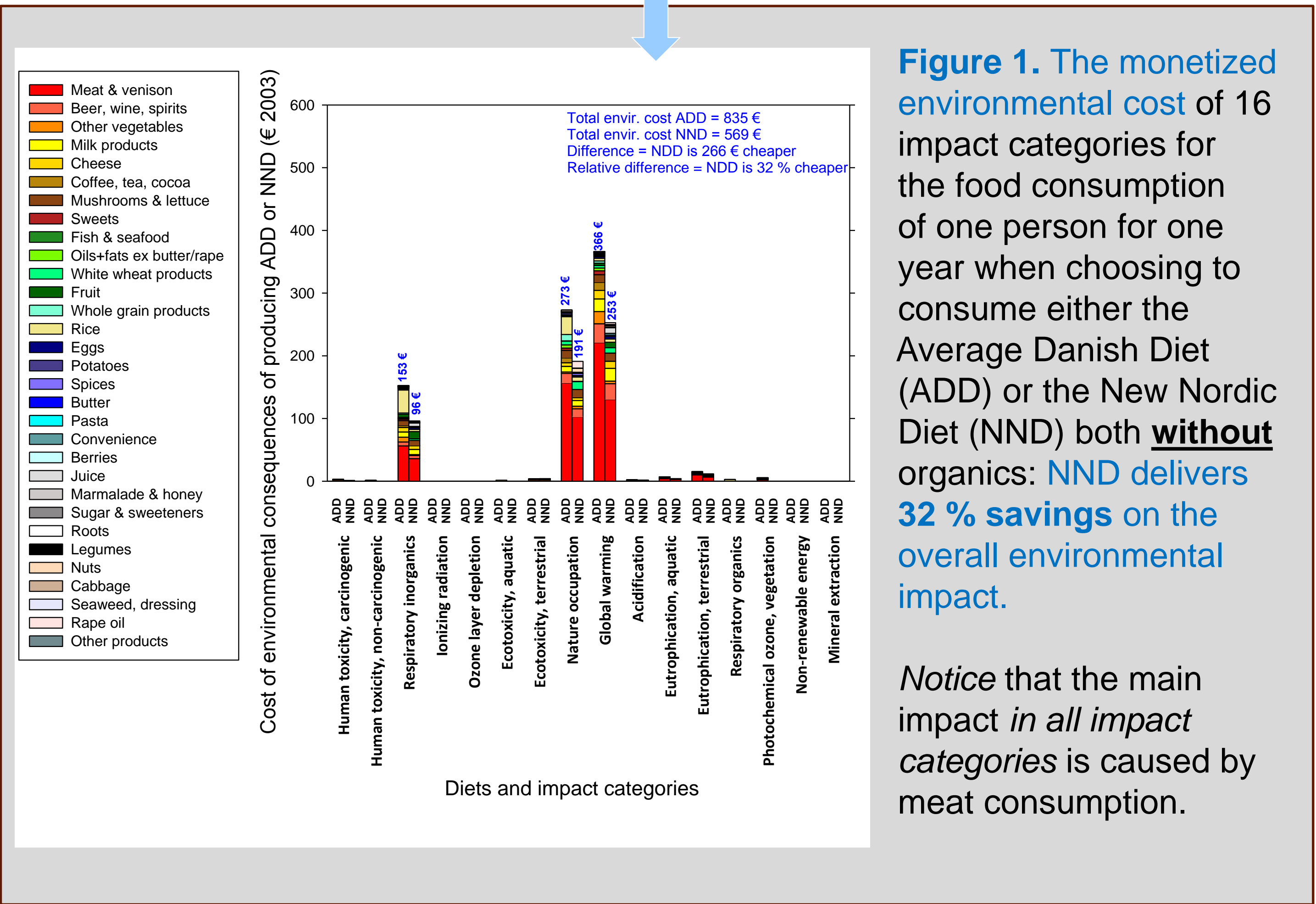


Figure 1. The monetized environmental cost of 16 impact categories for the food consumption of one person for one year when choosing to consume either the Average Danish Diet (ADD) or the New Nordic Diet (NND) both without organics: **NND delivers 32 % savings on the overall environmental impact.**

Notice that the main impact in all impact categories is caused by meat consumption.

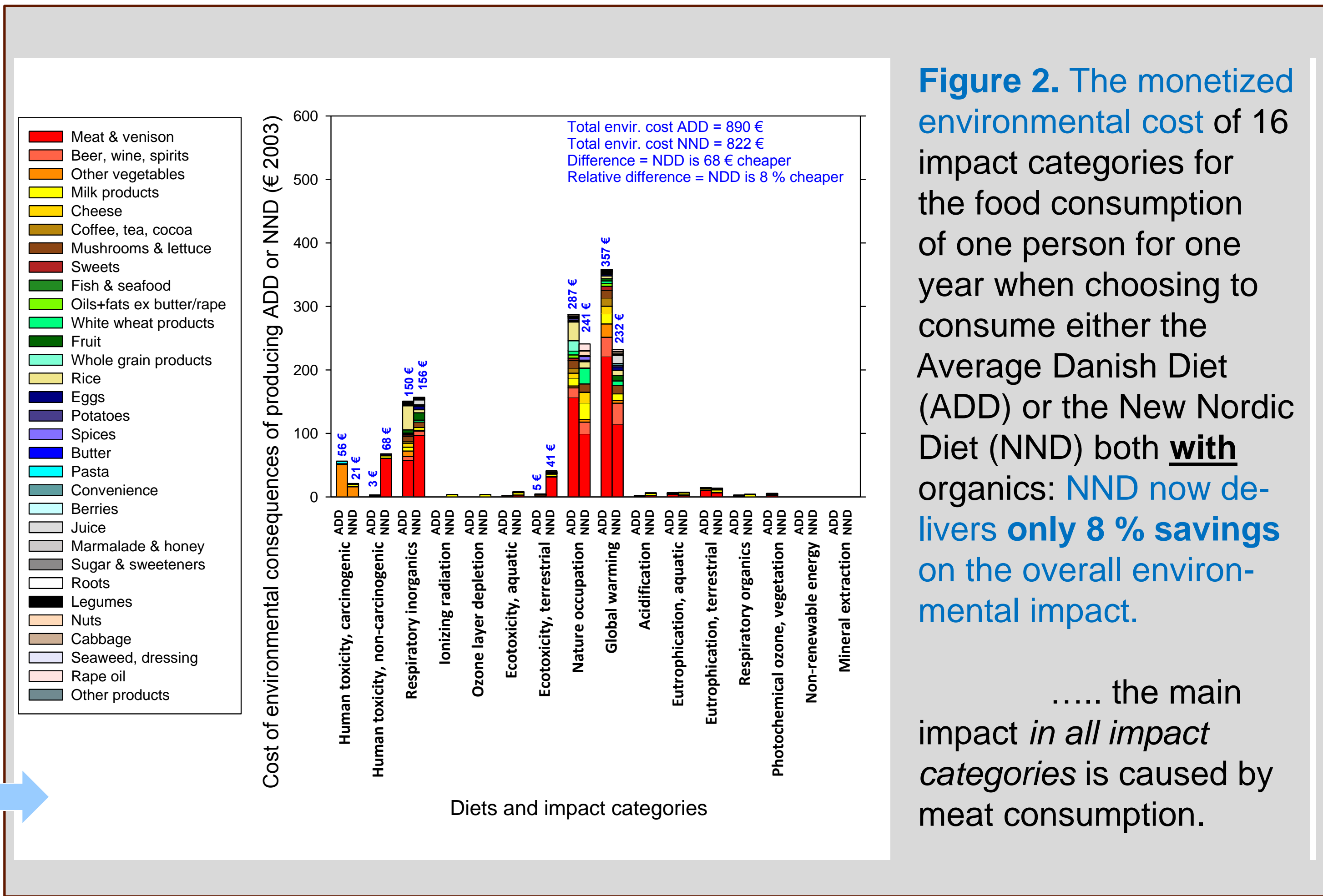


Figure 2. The monetized environmental cost of 16 impact categories for the food consumption of one person for one year when choosing to consume either the Average Danish Diet (ADD) or the New Nordic Diet (NND) both with organics: **NND now delivers only 8 % savings on the overall environmental impact.**

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